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containing related machine-readable information that facilitates formation and/or use of those moieties, e.g., arrays. While information relating to assay conditions may be contained in these devices, assay conditions must be separately monitored and then converted into information in the devices. This poses a problem particularly where it is desirable to perform assays with different equipment, at different locations or at widely separated times.

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The substrate of the device may take a number of forms. For example, the substrate may comprise a disk, tape, well plate, a slide, or other objects commonly used as a substrate. Optionally, the substrate may further contain machine-readable information and/or a medium on which information may be written. Such medium is typically selected to contain electronic information and may be noncoplanar with respect to the surface on which the molecular probes are attached. Optimally, the medium is writable from a surface that opposes the surface on which the molecular probes are attached. Devices comprising a substrate having molecular moieties attached to a surface thereof and containing machine-readable information are described in U.S. Patent Application Serial No. 09/712,818, ("Integrated Device with Surface-Attached Molecular Moieties and Related Machine-Readable Information"), inventors Ellson, Foote and Mutz, filed on November 13, 2000 and assigned to Picoliter, Inc. (Sunnyvale, California).

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Optionally, the well plate 13 is attached to a cartridge base 29 to form an integrated cartridge 25 and to define a cartridge interior 31. A magnetic disk 33 is generally interposed between well plate 13 and the cartridge base 29 within the cartridge interior 31. The disk 33 is a generally flat and circular piece having an upper surface 35 and a lower surface 37. A cylindrical hub 39 extends perpendicularly from the center of the lower surface 37 of the disk 33 through circular opening 41 of the cartridge base 29. The disk is free to rotate about its hub in a generally free-floating manner. The lower surface 37 is coated with magnetic storage medium 43 that allows a spiral track 23 to be formed therein to magnetically store machine-readable information related to the molecular probes. Also optionally located in the cartridge base 29 is a rectangular opening 45 that provides external access to the magnetic disk contained in the

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cartridge interior 31. A slidable spring-loaded panel 47 covers the opening 45 in order to protect the magnetic medium on the disk from damage when the disk is not in use. As shown, the slidable panel 47 is positioned such that it does not cover the opening, thereby providing a magnetic reader access to the magnetic medium on the disk. Thus, the information contained in the spiral track 23 is ready for reading by a magnetic reader. Design, construction and use of such magnetic readers are well known in the art. For example, the magnetic reader may engage the disk by gripping the portion of the hub 39 that is accessible to the exterior to the cartridge and spinning the disk. This allows information contained in the spiral track to be read. As the information relating to the attached probes is located within the disk as a spiral track 23 rather than on the interior surfaces 15 of the well plate to which the molecular probes 21 are attached, it is evident that the information is located in a discrete region of the disk that is noncoplanar with respect to the surfaces 15. Optionally, one or more of the interior surfaces 15 may be covered with a protective layer (not shown) that protects the probes from damage as a result of improper handling. Devices for sealing well plates are commercially available from many sources including TekCel Corporation (Hopkinton, MA). Such protective coatings may also be adapted to protect the integrated indicators.

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Optionally, information relating to the molecular probes is contained in an electronic microchip 23 that provides sufficient memory to store such information. As shown, the microchip 23 is embedded in the slide 13. Such a microchip 23 may be partially exposed at surface 17, as shown in FIG. 3, or located entirely within the substrate. Such microchips are often employed in smart cards, e.g., plastic cards resembling a credit card that contains a computer chip, which enables the holder to perform various operations, such as mathematical calculations, paying of bills, and the purchasing of goods and services. Use of smart card technology in conjunction with nucleotidic probes is described in U.S. Patent Application Serial No. 09/712,818 ("Integrated Device with Surface-Attached Molecular Moieties and Related Machine-Readable Information"), inventors Ellson, Foote and Mutz, filed on November 13, 2000 and assigned to Picoliter, Inc. (Sunnyvale, California).